MONITOR ONE Mk2

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ALESIS

MONITOR ONE Mk2 ™

Owner's Reference Manual

the ***re• evolution*** of music

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Alesis Monitor One Mk2 Reference Manual

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Thank you!

for purchasing the Alesis Monitor One Mk2™ Studio Reference Monitors. To take full advantage of the Monitor One's operation, and to enjoy long and trouble-free use, please read this user's manual carefully. We value any comments you may have about this monitor system, this manual, your Alesis dealer and about our factory service. Please take a minute now to visit our website at www.alesis.com and register your product.

> ✪ **When something important appears in the manual, an icon (like the one on the left) will appear in the left margin. This symbol indicates that this information is vital when operating the Monitor Ones.**

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Important Safety Instructions

Safety symbols used in this product

This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.

Please follow these precautions when using this product:

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with a damp cloth. Do not spray any liquid cleaner onto the faceplate, as this may damage the front panel controls or cause a dangerous condition.

7. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Use only attachments or accessories specified by the manufacturer.

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10. Use only with a cart, stand, bracket, rack, or table designed for use with professional audio or music equipment. In any installation, make sure that injury or damage will not result from cables pulling on the apparatus and its mounting. If a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

11. Unplug this apparatus during lightning storms or when unused for long periods of time.

12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

13. This product, in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

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CE Declaration of Conformity

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chapter 1

About the Monitor One

Your new Alesis Monitor One Mk2™ Studio Reference Monitors will deliver accurate mixes in near-field digital and analog studio monitoring applications. The Monitor Ones offer wide frequency response, accurate transient reproduction, clear imaging and high power handling capability and were designed by experts with decades of experience in professional loudspeaker design. The original version was a winner of the prestigious TEC Award and became an instant favorite among professional engineers and studio owners. The "Mark 2" edition of this famous product makes a few design and material changes that make it even better while preserving the classic sound of the original.

This speaker system uses a proprietary 6.5" high-power low frequency driver with a special mineral-filled polypropylene cone. The cone is suspended by a highly damped linear rubber surround with a special edge design to improve midrange frequency response. It has a 1.5" diameter voice coil wound on a high-temperature Kapton former, with a long-throw voice coil and magnet.

The 1" high frequency driver employed has a soft natural silk dome and is ferrofluid-cooled. A newly-designed waveguide surrounding the dome improves the polar pattern, giving a smoother off-axis response.

Both drivers are now magnetically shielded, allowing the speakers to be mounted close to video and computer screens without distorting the color images.

The system's passive crossover network uses low dielectric loss non-polarized capacitors and an oversized low-loss low frequency inductor. Both high-pass and low-pass sections are true second-order filters (12 dB/ octave) with a crossover at 2 kHz. Rear panel connections are made via 5-way binding posts suited to large diameter wires as well as banana plugs.

The cabinet design uses Alesis' exclusive SuperPort™ speaker venting technology. Most small speakers used for near-field monitoring give disappointing results in their lowest frequency range. They are either sealed (which limits the amount of air the driver can move) or have an undersized vent whose function at low frequencies is nullified by the effect of turbulence in the restricted port tube at loud sound levels. The Monitor One's large

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folded SuperPort overcomes this limitation by minimizing vent turbulence at high air velocities, thereby ensuring that the enclosure tuning remains stable, the acoustic output remains linear during heavy low frequency attack transients, and that the reactive load above and below box resonance seen by the driving amplifier does not dynamically shift in frequency. This all translates to tighter bass with higher definition.

The Monitor One's 4 ohm load impedance takes advantage of today's modern professional amplifiers which are generally capable of a 1 to 3 dB increase in output power with 4 ohm loads over their 8 ohm ratings. The result is a similar increase in the Monitor One's acoustic output over conventional 8 ohm monitors. Reliable handling of this additional acoustic output is ensured by the Monitor One's substantial power handling capability. Typical near-field monitors are rated at 50-60 watts maximum, but the Monitor One carries a 120 watt continuous power rating and has been successfully tested to over 200 watts using the industry standard EIA-426A method. This is a rugged speaker system designed for serious professional use.

Covered with a vinyl laminate on the cabinet body and featuring a 1" thick MDF powdercoated front baffle with radiused edges to decrease edge diffraction, the Monitor One Mk2 may be mounted vertically or horizontally.

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About near-field monitoring

In the early days of recording, most recording studios used big monitor speakers almost exclusively. Unfortunately, they also required high-powered amplifiers and expensive acoustic treatment (often poorly done) of the *entire* control room. Still, a well-constructed big monitoring system really was impressive to listen to, a fact not overlooked by the studio owners wbo wanted to impress the record company executives who paid for the big studio's time. These big systems had big level control knobs, and clients enjoyed "cranking-up" the volume.

Fortunately, recording engineers and producers eventually learned that this was not the best way to accurately mix music because it wasn't the way people listened to their radios, cassettes and CD players (metalheads excepted). Also, big monitor systems and the costs for the required control room acoustic treatments were going tbrough the roof (no pun intended), particularly beyond the budget limits of smaller project and home studios whicb were growing in numbers. A new way of accurate monitoring was needed: near-field monitoring.

Near-field monitors, by their definition, are intended for mounting close to the listener. The idea here is to improve the direct acoustic path between the speaker and the listener by making it shorter, thereby giving less opportunity for the always-present indirect (reflected) sounds to get back in and muddle things up. Witb near-field monitoring, the surrounding acoustic environment becomes a much less significant factor in establishing the monitor system's sound character.

A good set of small monitors properly placed in a reasonably non-reverberant room and powered by a 150-watt amplifier will yield surprisingly accurate results at budget prices. The Monitor One has become a standard used in thousands of studios worldwide because, unlike other "bookshelf" speakers, it's designed to be listened to for hours at a time without causing ear fatigue and can handle loud low-frequency transients. Carried to another studio, the Monitor Ones should also provide *repeatable* results. In fact, some recording engineers carry their own Monitor Ones around because they know how they will sound in almost any room. Now, even the big studios use Monitor Ones to augment their big monitoring systems, and near-field monitors bave become proven tools in tbe recording business.

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chapter 2

Installation

Like any speaker system, your Monitor Ones will work best when properly positioned in a suitable acoustic environment. Achieving proper speaker placement is usually straightforward, but even with near-field monitors, speaker placement and the acoustics of the listening room itself are too often overlooked and can become significant contributors to an inaccurate and uninspiring monitoring environment.

Please take a moment to read this information carefully. It will help you to get the most use and enjoyment from your new Alesis monitors.

Speaker placement

Avoid reflections

While near-field monitors are fairly forgiving of the surrounding room acoustics, it is always prudent to optimize the listening environment whenever possible. First, the user should be aware of the effect that the size of the listening room can have on low frequency response. In general, the smaller the room, the stronger the bottom end will be, although within a larger room placement can also make a difference. This has to do with the way low-frequency waves travel in closed spaces. If you find your monitor system to be either light or heavy on the bottom, try moving them around within your listening room.

Because the Monitor One's SuperPort tube is located at the rear, position the monitors at least six inches away from anything that would block the port. Do not place the Monitor Ones inside a bookshelf or other closed chamber, such as a wall soffit. The Monitor Ones are designed to be used in free space. Otherwise, bass frequency response will be adversely affected.

You should avoid locating your Monitor Ones near reflective surfaces such as glass, tile, large open walls or table tops. Still, many rooms used for recording have these surfaces, so the best way to deal with them is to place the monitors out in the room away from reflective walls, windows and sizable objects.

Even with these reflective surfaces separated from the monitoring position, typical mixing situations usually still have the top surface of the mixing console to deal with. Unfortunately, the console itself can be a major source

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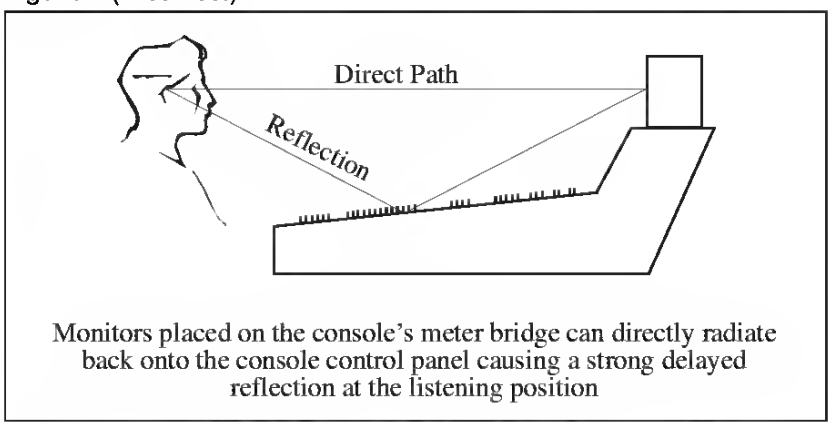
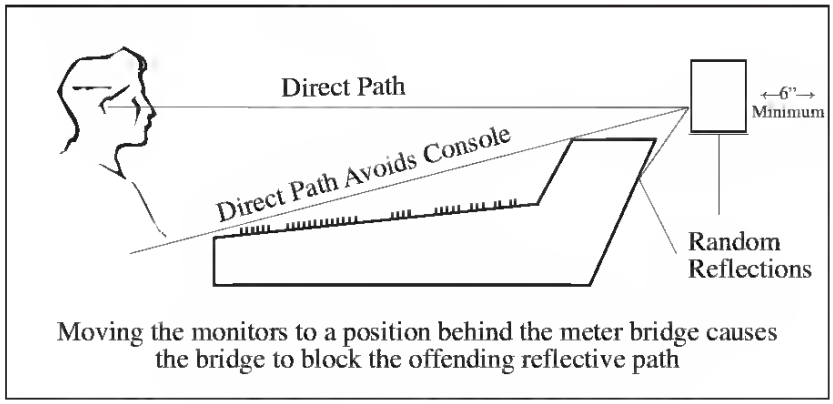
of reflections and the additional acoustic conduction into tbe board can affect your monitor's amplitude and phase response. Avoid speaker placement directly on the console's meter bridge, because this results in two different acoustic paths between the speakers and the recording engineer causing undesirable comb filtering effects and poor imaging. The first path is the direct one, and the second is via a reflection off the mixer main control panel (as shown in Figure 1 below). Speaker placement directly on the meter bridge also couples acoustic energy from tbe speaker's cabinet more readily into the console's chassis. Both conditions should be reduced by placing the speakers on their own stands acoustically detached from, and slightly behind, the console as shown in Figure 2. In this location, the reflective patb off the console's control panel is now blocked by the meter bridge.

Figure 1 (incorrect)



Monitors placed on the console's meter bridge can directly radiate back onto the console control panel causing a strong delayed reflection at the listening position

Figure 2 (recommended)



Moving the monitors to a position behind the meter bridge causes the bridge to block the offending reflective path

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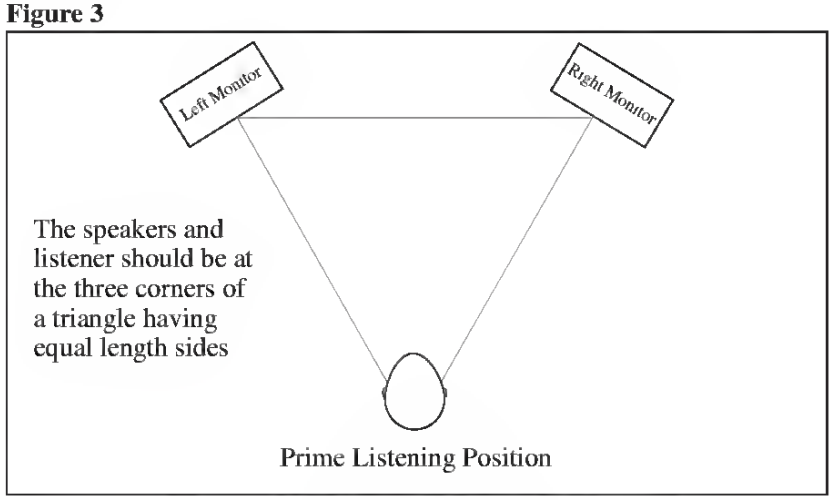
The listening triangle

Careful consideration should also be given to the physical spacing between the speakers. Alesis recommends that the distance between the speakers equal the distance between the listener and either speaker. In other words, the listener and the two speakers are at the three corners of an equilateral triangle. Figure 3 shows this concept. Note that both speakers are turned in somewhat, so that the prime listening position is directly out in front of each speaker. Applications that require monitoring by more than one engineer are accommodated by a smaller rotation of the cabinets. This will widen the prime listening position somewhat.

Figure 3


Left Monitor
Right Monitor
The speakers and listener should be at the three corners of a triangle having equal length sides
Prime Listening Position

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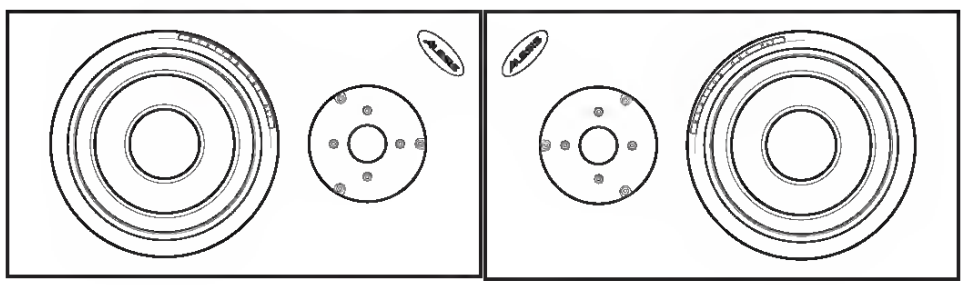
Symmetry

Alesis has designed the Monitor One Mk2 for horizontal or vertical mounting. Horizontal mounting, however, keeps tbeir height profile as low as possible to minimize the recording engineer's visual obstructions. Proper horizontal placement of speaker systems slightly *behind* (not *on*) a meter bridge accomplishes two purposes: it allows both woofer and tweeter to be at ear level, and many times, it permits the recording engineer to see over tbe speakers and into the studio. Of course, the traditional vertical method of mounting the speakers with the high frequency drivers at the top is perfectly acceptable too.

NOTE: We recommend that the M1 Active Mk2 speakers be placed with the tweeters to the inside, not the outside, of the listening triangle.

Your Monitor Ones are supplied as a pair, and if mounted horizontally, should be installed with the soft-dome high-frequency drivers towards the inside of the triangle (see below).



The high frequency driver should be on the right side of the left monitor and on the left side of the right monitor.

In any mounting configuration, make sure the Monitor Ones are secure and won't vibrate off the surface. Setting them on a sheet or pads of rubber or felt will help this, as well as isolate the base from vibrations.

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Why not place tweeters to the outside?

The "classic" studio monitor layout used to be that the tweeters he placed to the *outside* of a horizontally-oriented speaker. In the past, this configuration was actually heneficial in time aligning the tweeter with the woofer *if* the cahinets were not toed-in toward the listener. (But they usually are, which makes time alignment worse if tweeters are on the outside.) In addition, this configuration is highly prone to comh filtering effects if the listener's head is moved from side-to-side while mixing. This "comh filtering" causes the mid-to-high frequency tones to get louder, then softer, then louder again as you move your head from side-to-side, making it very confusing when trying to mix with precision.

Some people still helieve that stereo separation is "improved" with tweeters to the outside, but this is advice left over from the early days (the sixties) of stereo recordings when "correct" stereo often meant a complete hard right or hard left placement of an instrument (or singer). As stereo mixing techniques changed toward placing the vocalist (for example) in the center, the old "tweeters-out" orientation would indeed widen the image *if* one's head were kept in the *exact center* position. But this set-up proves to be very tiring, very quickly for the recording engineer. And, to others who are listening to the mix from either side of the engineer, the sound will seem to he coming primarily from the speaker closest to them.

Fortunately, recording techniques have changed radically since the sixties. Engineers have learned to how to "place" an instrument or singer within the mix so that an accurate re-creation of the actual instrument and vocal positioning (left-to-right and front-to-hack) is achieved. In the Monitor One Mk2, advances in crossover design technologies and improvements in the off-axis response of tweeter domes and woofer cone materials and profile have made the requirement for tweeters to be placed to the outside of the cahinet ohsolete. In fact, using a non-toed-in, tweeters-out orientation with a modern, wide dispersion design like the Monitor One Mk2 will increase the likelihood of hearing unwanted first reflections and a variety of phase anomalies in your mix.

So, proper tweeter orientation is toward the stereo image center (the middle) as shown. This arrangement will promote a strongly focused center image (such as for the vocals). And hecause the (vocal) image width will he narrower than if the speakers are placed vertically, it will he possihle to place the vocalist with great precision at stage center. In this orientation there will he much less chance of first reflections from either sidewalls or the console coloring your mix.

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Connecting your speakers to an amplifier

Before connecting the speakers, make sure your amplifier is turned OFF!

Tbe Monitor One Mk 2 features professional-grade 5-way binding posts for external wiring to the amplifier. This type of connector can accommodate bare or tinned wires, banana plugs in two different orientations, and even spade lugs.

About Wire: Use the shortest length of the largest diameter wire you can get. #12-14 gauge multi-stranded speaker wire found at most hi-fi stores works very well. This kind of wire resembles oversized lamp cord and is very easy to work with.

Use the correct polarity when wiring

Be sure you wire the + terminals of the speakers to the + terminals of the amplifier. If one speaker's polarity is out of phase with the other, tbe result will be loss of low frequency response and stereo imaging when the system is played. To help you do this, most speaker cable has a way to tell one conductor from another. Some use different-colored wires or insulation; others mold a small line or marker into one insulator to mark it.

In most cases, the speaker outputs of the amplifier will have a red terminal and a black terminal; tbese sbould be connected to the same-colored terminals of the Monitor One. Consult the manual of your power amplifier for specific information. In a properly-phased system, a positive input to the amplifier should result in a positive voltage on the red terminal, and push the driver forward.

If you are using a dual banana plug connector, one side of the plug usually has a "GND" marker molded on it so you can keep polarity straight after unplugging and replugging. In standard practice, the GND side connects to the black terminal of tbe speaker. Note tbat you may plug a banana connector directly into the jack top, or you may turn the red and black terminal caps of the Monitor One all the way up and plug the banana connector into the sides of the jack. Use the method that will be the most secure and cause the least amount of bending of the wire.

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To connect wires to the terminals if you are not using a banana plug:

1. Strip about 1/ 2" (15 mm) of insulation from the ends of each wire. If the wire is stranded, twist the strands together at the end.

2. Turn the red and black terminal caps counter-clockwise until they reach their limit. As you do, the hole through the terminal post will be exposed.

3. Insert the wires into the holes, observing proper polarity.

4. Tighten the terminal caps so that they hold the wire firmly.
   Make sure no insulation is caught inside the terminal, to avoid a loose connection.

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Power and Protection

What size power amp should you use?

Alesis recognizes that professional speakers need to be strong to survive, so the Monitor One is designed to bandle twice the power of most otber near-field monitors. This was achieved by using proprietary high-power drivers and oversized crossover components, choices made principally to offer the user an extended margin of safety. Therefore, an amplifier with a 150 watt power rating into 4 ohms, like the Alesis RA-300™ Reference Amplifier, is recommended for most monitoring situations. Higher or lower power amplifiers may be used, depending on the size of the listening room and the engineer's preference for normal working levels.

Be sure to verify that your amplifier is rated for 4 ohm speakers. Some older amplifiers are not and may fail if overloaded. Alesis is not responsible for any failures caused by the use of an improperly-rated amplifier.

Also, tbere is no situation where an amplifier rated beyond 200 watts per channel should ever be used because of the danger of damaging the Monitor One. To do so is asking for trouble and will void your warranty. On the other hand, if you use too small of a power amplifier, it is possible to damage the Monitor One if you run it into heavy clipping and distortion in an effort to get sufficient volume. This can lead to failures of both the amplifier and the speaker, as the amplifier's clipping generates high frequency energy sufficient to damage the high frequency driver.

Should I install a fuse?

Alesis does not suggest the use of any external protection devices, but considers such devices as fuses, lamps and/ or thermal breakers safe to use, so long as tbey do not cause failures or require modifications to tbe Monitor One's construction which would void the warranty. Actually, many such devices are generally considered ineffective and can additionally alter the speaker's sound character, an undesirable trait for a studio monitor. The best protection against speaker failure is to mix at a reasonable listening level.

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